Credit Risk Factors in Islamic Banking: A case of Pakistan

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Abstract:
The rationale of this paper is to look into the determinants of credit risk on account of Islamic banking industry of Pakistan. Researchers have taken 13 Islamic banks information from the year 2005-2017, this paper makes utilization of the fixed effect regression model to give observational confirmations on credit risk behavior with respect to Islamic banking industry in Pakistan. The findings show that capital ratio and financing quality reveal steady outcomes regardless of specification and estimation models. The finding added critical verification to the present writing on layaway hazard specifically Islamic banks credit Risk. Management of Islamic Banks in Pakistan should consider that BSV do significantly effect on credit risk for management in Islamic Banks. They should keep in mind that any worsening in financing will be result in higher loss provisions.
Keywords- Credit risk, Financial expenses, Islamic Banking

1. Introduction

1.1 Background of the Study

The Islamic managing an account and back (IBF) undertaking has seen various fundamental events amid the most recent decade in light of the fact that their commencement in 1975, IBs have now end up being a worldwide marvel, alongside the UK , China (Hong Kong), Australia, Singapore and loads of Europe. In specific nations like Pakistan, Malaysia and Bahrain, the Islamic managing an account (IB) endeavor has progressed from a commonly residential trouble to positively one of overall centrality. By utilizing the aggregate resources for the development of Islamic Banking industry which arranged from US$1.8 trillion assessed at the stop of 2013 and is anticipated to be additional than US$2.0 trillion by the surrender of 2014 (IFSB, 2014). In the course of the most recent ten years the IB business has seen changes in monetary conditions and the beginning of a budget crisis. It is expressed that Islamic banking sector all things considered keep on being strong and keep on growing internationally.

(Iqbal, Z. , & H.V. Greuning, 2008) Financial intermediation plays vital role for crating healthy financial system in any economy.

Major countries financial intermediation consist on banking system. There is also two types of banking system first one is conventional banking system and second one is Islamic banking system. As we know that Islamic banking system is based on Sharia rules and regulations and providing services to those customers which are not using conventional Banking system. Sharia provide complete guidelines for performing any financial transactions for the purpose adding value in economy.
(Tafri, H.F., R. Abdul Rahman, & N. Omar, 2011)Risk management is necessary for the profitability and achieving growth for any organization. Risk management is key for the success of any type of organization specially banks. Bank which is enable to manage their risk can earn high profit as well as grow but the bank which is not enable to manage their risk will default in near future.

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(IFSB, 2007)There are two general approaches for risk management of bank or any other type of firm. First one is risk aggregation which will be covering through simply diversification and second one is Risk disintegration which consist of finding risk covering process and dealing with each one by one.

Early researches on the determinants of credit risk had mainly focused on conventional banking credit hazard control in particular in developed nations (Berger & DeYoung, 1997; Berger & Udell, 1990). As an instance, (Febianto ,2012) carried out a library-primarily based studies analysis, and Abedifar, Molyneux, and (Tarazi ,2012) did an empirical analysis on 24 agency of Islamic Cooperation (OIC) nations. This paper goals to look at the key components of credit risk of Islamic banks in Malaysia by presenting Islamic financing sorts and ownership frame factors. Pakistan has been chosen on the grounds that the example us of an in light of its job inside the worldwide Islamic managing an account venture. Given that at that point, the scope of Islamic Banking products has extended with the execution of interest free

Banking Scheme in 1993. This scheme allowed commercial banks to provide Shariah-accredited products through Islamic home windows. Islamic banking structure in Pakistan procured hearty help from the specialists, and as on the end of 2014 there were 8 totally fledged Islamic banks and 5 worldwide Islamic banks working inside the nation.

1.2 Overview of Target Population

Pakistan Banking industry consist of both conventional and Islamic banking system. This study is solely on Islamic banks so our target population is 13 Islamic banks of Pakistan which providing Islamic banking services in Pakistan. We collect data from year 2005 to 2017.

1.3 Research Objectives

Pakistan is an Islamic country and there is a lot of customers which reluctant to use conventional banking system. There are following research objectives which given below:

1. Contribute for growing Islamic banking system in Pakistan
2. Provide helping to those customers to use Islamic banking services which are not agree to use conventional banking system.
3. Through this research study conventional banking system will get motivation to moving Islamic banking system through managing their credit risk.

1.4 Significance of the Study

As we know that Pakistan Banking industry consist of both Islamic and conventional Banking system. They have to serve same customer with both services. It's important for banking industry to know how they have managed credit risk in conventional as well as Islamic Banking system. This research will indicate how they have to manage credit risk in Islamic banking industry of Pakistan. If Islamic banking industry management not fully aware of credit risk management it can be result insolvency of Banks.

1.5 Research Questions

RQ1. Is there any significant relationship between Financing quality and Credit Risk for Islamic Banking Industry of Pakistan?
RQ2. Is there any significant relationship between Bank Capital and Credit Risk Islamic Banking Industry of Pakistan?

2. Literature Review

2.1 Related Literature Review

Particularly in advanced countries Credit risk control research have attracted the attention of numerous events. Researching the components that focused the credit risk scoring inside the banking industry isn't constantly easiest imperative to the budgetary foundation's administration yet additionally to administrative government. Early studies have measured the credit hazard by using the ratio of non-performing loans. In managing an account explore, the home loan is surveyed as NPL while the charge of intrigue and essential are past due through 90 days or more prominent. Better NPL reasons the banks to encounter diminish income edges and if the inconvenience transforms into additional genuine, it can prompt an emergency. (Najuna Misman, Bhatti, Lou, Samsudin, & Abd Rahman, 2015) Deliberate the Islamic banks credit risk. Authors use Panel data technique for gathering data and Pairwise correlation matrix for obtaining results. Their finding shows that few specific variable influences credit risk for Pakistan Islamic banking industry.

Mostly studies suggest that there are strands of writing on the components that drive chances of credit. The most extreme mainstream strand demonstrates that financial assessment risk is pushed by methods for a few bank exact factors and the second one strand contends that macroeconomic components significantly influence the FICO assessment shot of banks. A study of the writing educates us that previous examinations generally tried the determinants of credit risk either utilizing BSV or macroeconomic components as logical factors. On the other side few studies used each macroeconomics and BSV variables to explain the non-performing loans of banks. The precedents comprise of (Louzis, Vouldis, and Metaxas ,2012) who take a gander at the determinants of credit risk in Greece's managing an account district by method for the utilization of macroeconomic and BSV as illustrative factors. They utilized the non-performing loans of different advance classes as the needy factors and find that NPL of Greek banks are specifically clarified by means of macroeconomic factors which incorporates joblessness, GDP and leisure activity charges.

Greatest exact investigations that investigate the impact of the BSV on NPL, makes utilization of home loan increment, advance lovely, control excellent, estimate, contract focuses, and capital on the grounds that the factors. (Demirguc-Kunt, 1989) has reviewed experimental literature on deposit institution disasters. They infer that capital adequacy ratio, assets fine, administration fitness and income are a considerable lot of the huge logical factors for bank disappointment. (Berger and DeYoung, 1997) perception on the BSV as a pointer for problem credits and execution of the banks. The use of a US business banks dataset for the term 1985 to 1994, they tried the between transient seeking among inconvenience advances and esteem productivity. There are four hypotheses in this study like horrific control express as low-price efficiency sign for negative management, horrific luck referring to external events, ethical danger and Skimming difficulty. They find verification that expense effectiveness and capital are contrarily connected with issues of credit. (Angbazo ,1997) makes utilization of US money related establishment name record records for 1989 to 1993 to view the association between web premium edges and premium charges danger, default hazard and shaky sheet exercises. The researcher entitlements that there is a strong and positive relationship among default hazard, length and net interest margin. Most recent researches emphasis at the BSV as the core components of credit score risk include (Jiménez, Lopez, and Saurina ,2007), (Konishi and Yasuda ,2004) and (Godlewski ,2005)

(Hassan Al-Tamimi & Al-Mazrooei, 2007) Investigated Bank's risk management and compare UAE state banks and external banks. Authors used questionnaire technique for the purpose of collecting data which were consisting on close ended interval scale as well as close ended ordinal scale questions. Researchers find that Credit risk effect UAE commercial banks.

2.2 Islamic banks and credit Risk

Progressively more research on chance administration of Islamic banking system mindfulness at the systems of threat administration, Shariah issues and related hurdles looked by Islamic banking system. Only a couple of investigates address the trouble of danger determinants, specifically financial assessment chance. Despite the fact that the wide assortment of exact research on Islamic banking system, scoring of credit risk hazard is little, some endeavored to deliver the inconveniences identified with this exact sort of hurdles (Al-Tamimi & Al-Mazrooei, 2007; Hassan, 2009; Makiyan, 2008; Wilson, 2007). Analysts have tended to different threat control inconveniences which incorporates credit risk; be that as it may, every one of these investigates don't experimentally see the determinants of Islamic banking financial assessment danger. Numerous empirical analyses have a look at their hazard and maximum of them used a single United States of America evaluation and BSV as the explanatory variable. Most recently (Aisyah, Abdul Rahman, Mansor, and Meera ,2009) examine the impact of loaning structures and specific bank variables on the insolvency factors of Commercial banking and Islamic banking in Malaysia from 1994 to 2006. This end implies that the administrative bodies need to present stand-out capital recommendation for both managing an account structures, on account that their activities and items are significantly unmistakable.

The contrary investigation by utilizing (Ahmad and Ahmad ,2004) check out the key components impacting the credit peril of Islamic banking system of Pakistan. They utilized a dataset involving one completely fledged Islamic bank, 6 Islamic windows and 6 Commercial banks for the duration 1996 to 2002. This take a gander at reports that administration proficiency, risk weighted effects and size impact of Pakistani Islamic bank credit risk measurement. They additionally presumed that there are similitudes and varieties between credit assessment risk determinants for Commercial banks and Islamic banks. (Aisyah Abdul, Rahman and Shahimi ,2010) dissect the impact of financing structure and Bank specific variables on layaway score chance the use of board records investigation for Malaysian Islamic banks from 1994 to 2008. They likewise joined macroeconomic factors into their system. The outcomes show that sort of financing responds in another approach to credit risk while the model ended up controlled for macroeconomic factors. The credit sources and unfurl of long-term premium charge and money commercial center charge finy affect financial assessment hazard. These infer that the Islamic banking system ought to be fit for control credit supply through now not unreasonably loaning to unpredictable divisions, on the off chance that you need to handiest increment the credit peril exposures.

2.3 Gap Statement

Finding the effect of financing quality on credit risk of Islamic banking industry of Pakistan.

3. Data and Methodology

3.1 Nature and Source

The records are accumulated from monetary statements and annual reports of 13 Pakistann Islamic banks; those files are positioned at the State Bank Scope database and each financial institution's website.169 observations have been collected from these 13 banks.

3.2 Variables

The present study of credit risk measurement for the islamic banking sector of Pakistan uses financial data of various variables which are explained in detail under their respective headings.

3.2.1 Dependent Variables

The following variables indicating a credit risk which is used as a dependent variable

- **Credit Risk** = calculated on the basis of the overall ability of the buyer to repay the loan

3.2.2 Independent Variables

The following seven independent variables were used as the measure of credit risk for the research study;

- **Financial Exp:** General financing/General property
- **FL:** Provision for loan losses/ General Assets
- **C. Buffer:** Total Equity/ General belonging
- **C. Ratio: (**Tier I+ TierII)/ Total assets
- **NM:** Net hobby margin
- **MGT:** General Income/Total Assets
- **Size:** Natural log of assets

3.2.3 Dummy Variables

In addition to the independent variables stated above, the following two dummy variables were used in the research study;

- **EF** = 1 use for equity financing otherwise in case of total financing use 0
- **SF** = Use 1 for base financing other .

3.3 Modeling of Study

For analyzing the econometric relationship between dependent and independent variables including dummy variables, the following two econometric models can be established based on previous research studies;

$\textbf{(Credit Risk)}_{\textbf{it}} = \beta_0 + \beta_1(Financial\ Exp)_{it} + \beta_2 Financial\ Exp^2)_{it} + \beta_3(F.L)_{it} + \beta_4(C.Buffer)_{it} + \beta_5(C.Ratio)_{it} + \beta_6(NMe)_{it} + \beta_7(MGT)_{it} + \beta_8(Size)_{it} + U_{it}$ ……………………………(i)

$$\textbf{(Credit Risk)}_{it} = \beta_0 + \beta_1(\textit{Financial Exp})_{it} + \beta_2\textit{Financial Exp}^2)_{it} + \beta_3(F.L)_{it} + \beta_4(C.Buffer)_{it} + \beta_5(C.Ratio)_{it} + \beta_6(NMe)_{it} + \beta_7(MGT)_{it} + \beta_8(Size)_{it} + \beta_9(EF)_{it} + \beta_{10}(SF)_{it} + U_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

3.4 Hypothesis of study

H_0: There is significant relationship of credit risk with financial quality and bank capital of Islamic banking industry of Pakistan.

H_1: There is insignificant relationship of credit risk with financial quality and bank capital of Islamic banking industry of Pakistan.

4. Data Analysis

4.1 Panel Descriptive Statistics

Table I

Panel Descriptive statistics for study

Variable	Unit	Mean	Median	S.Dev	Minimum	Maximum
CR	%	6.561	4.843	6.654	0.132	18.543
Fin. Exp	%	49.765	47.765	21.765	0.987	80.876
FLP	%	0.987	0.765	2.345	-0.345	8.786
Cap. Buffer	%	8.906	6.865	7.876	-0.876	68.432
CAPR	%	19.654	15.765	32.765	-1.654	93.765
NIM	%	4.876	3.654	2.621	0.254	8.567
MGT	%	81.876	82.865	21.765	19.765	98.765
SIZE	US$	4,765,453	3,765,342	2,764,342	85,876	32,654,765

4.2 Pearson Correlation Matrix

Table II

Pearson Correlation Matrix for the Study

	Credit Risk	Financial Exp	FL	C. Buffer	C. Ratio	NM	MGT	SIZE	EF	SF
Credit Risk	1.000									
Financial Exp	-0.271***	1.000								
FL	0.478***	0.089	1.000							
C. Buffer	-0.081	-0.210**	-0.129	1.000						

C.Ratio	-0.141	-0.471***	-0.141	0.781***	1.000					
NM	-0.051	0.119	0.143	-0.052	0.072	1.000				
MGT	0.223**	0.472***	0.142	-0.261***	-0.493***	-0.344***	1.000			
SIZE	0.182	0.80***	0.096	-0.581***	-0.571***	0.082	0.380***	1.000		
EF	0.570***	0.073	0.361***	-0.130	-0.245**	0.089	0.678***	0.456***	1.000	
SF	0.410***	-0.234	0.232**	0.145	0.190	0.145	0.034	-0.067	0.467***	1.000

***** 1%, **5%, *10%**
Number of Panels = 13
Number of Periods = 13

Source: Researcher's self-analysis using STATA 13

Table II summarizes the cost of correlations for all variables used. The take a look at identifies a few variables which have a surprisingly high correlation with the correlation values above zero.5. The variables are C.Ratio and C.buffer (zero.781), size and C. buffer (-zero.581) and Size and C.Ratio (-zero.571). To similarly inspect this difficulty, a VIF post estimation test is implemented. The effects of this VIF take a look at propose that there is no multicollinearity hassle happens within the variables.

4.3 Panel Regression Analysis

Table III

Panel Regression Analysis Results

Independent variables	Dependent variable: (Credit risk)							
	(1)		(2)		(3)		(4)	
	Coef	**S.Error**	**Coef**	**S.Error**	**Coef**	**S.Error**	**Coeff**	**S.Error**
C	29.441*	18.987	64.786	46.876	-12.786	14.876	23.345	21.756
Financial Exp	-0.345**	0.115	-0.056	0.231	-0.043	0.345	0.045	0.342
Financial Exp^2	0.002	0.002	0.0002	0.002	-0.005	0.001	-0.002	0.034
FL	1.453***	0.234	0.985	0.545	3.200***	0.310	1.513***	0.401
C. Buffer	0.376*	0.181	0.314	0.501	0.573***	0.172	0.345	0.321
C.Ratio	-0.231***	0.065	-0.097***	0.052	-0.119**	0.072	-0.089*	0.087
NM	0.431*	0.432	0.342	0.163	0.092	0.365	-0.324	0.321
MGT	-0.053	0.087	-0.098*	0.078	0.045	0.043	-0.061	0.052
SIZE	-1.200	1.032	-4.654	4.765	2.654	0.564	-0.675	2.543
EF			-0.654	0.765			4.432	3.243

SF			-0.243	0.563			1.345	2.843
R-squared	0.418		0.523		0.567		0.598	
Notes: Columns first and 2nd run panel fixed effects regression while on the other hand column 3rd used Ordinary least square regression and in last column researchers used random effects GLS regression. **Source: Researcher's self-analysis using STATA 13**								

The ratio of Non-performing loans to overall financing is regressed against 7 basic bank variables, two dummies for IFT. The assessment is conducted the usage of balanced panel facts from 2005 to 2017. The total quantity of observations is 169 for the model with and without IFT variables. (White's,1980) cross-phase is used to adjust the standard mistakes for capacity incidence of heteroscedasticity.
Table III deals with the relapse impacts besides section one gives the effects to base model, while credit danger is backslid towards 7 fundamental banking factors. Distinct dummy variables are supplementary to the model in columns two to four. Fixed effects description is used within the regression in columns one and a pair of only. In columns three and four a dummy for fame is covered in the model, popularity dummy is time invariant variable. Consequently, constant results model cannot be applied in those two columns. The BPLM check suggests pooled Ordinary least saqure regression is the better desire for the column three model and random outcomes generalized least squar to be implemented in column four.
The explanatory energy of results in column one is about 41.8% with five basic banking variables having large outcomes on credit score threat at the 1%, 5%, and 10% significance stage. Financing growth shows a negative coefficient with credit score risk in each constant outcomes and OLS specification however not in RE-GLS. But, it only appears to have a vast effect for base version in column one. This negative considerable end result is regular with (Aisyah Abdul, Rahman and Shahimi, 2010). The analysis assumes that financing expansion to have a non-linear relationship with credit score chance. The quadratic specification is used in all columns. For the FE version the connection between financing expansion and credit hazard is U-

shaped in preference to an inverted U-form for the RE-GLS model.

Financing reports have significant associations with credit assessment chance for fixed effect and general least square model detail in column one, two and three, individually. This variable distinctly across the board in making sense of the acknowledge peril as the majority of the coefficients are enormous at 1% significant level. Those outcomes are of course because of the reality additional provisioning demonstrates that a bank may likewise have an issue with financing facilities. The downgrade in financing exceptional will potentially boom the danger of financing being defaulted. The coefficient declines inside the constant-consequences specification version. Its miles worth citing that the fixed effect version explores the variations between every character bank. This indicates each bank within the sample well-known shows one of kind traits over time; as an example, the risk management policy and its influence at the pleasant of the financing portfolio.

The opposite proxy for the bank capital in this have a look at is the ratio of general equity to total property, C. Buffer. Past research document mixed consequences regarding the relationship of capital buffer and credit threat. As an instance, (Godlewski, 2005) finds a tremendous tremendous relationship between fairness and danger, even as (Cebenoyan and Strahan, 2004) report negative relationships among capital buffer and credit risk. This analysis unearths capital buffer does have a positive coefficient and is statistically great for columns one and a pair of whilst the fashions have been now not managed by using the IFT dummy. An advantageous signal explains that IBs with greater equity capital tend to have better credit hazard than banks with less equity. This implies that banks with better fairness capital have a tendency to engage in greater risky financing sports because they consider they have got sufficient capital to buffer any ability losses.

NM is most effective significant inside the base version the usage of the FE estimation technique. When the estimation model consists of the IFT and standing dummy, NIM is insignificant no matter the estimation models. The MGT best shows negative great consequences within the column two estimation, whereas the version becomes controlled for IFT.

The incomes belongings of IBs include differently structured IF contracts. Therefore, IBs have to carefully decide the percentage of every type of financing settlement because exclusive contracts reveal IBs to extraordinary tiers of threat. IBs' inability to control this MGT will lead to an excessive credit score danger stage. With reference to the relationships among size and credit score chance, we did not find any huge relationships between these variables in all estimations.

The account dummies are crucial when inspecting whether or not different styles of IFT have many effects on credit risk of Islamic banking in Pakistan. We introduced dummies like EF and SF in columns two and four. The EF dummy takes a cost of one for Islamic banking that offers financing primarily based on Profit and loss saving contracts, even as the SF dummy takes value of 1 if the Islamic banking offer financing using aside from PLS and buying and selling contracts. Distinctly, we discover that each IFT dummies do not show any huge results on credit score risk stage of IBs. This implies that MIBs have green risk control frameworks in vicinity and modern-day rules that help IBs to mitigate threat from both varieties of financing systems.

5. A conclusion of the Research

The impacts support that some basic banking variables do radically affect financial assessment threats of Islamic banking in Pakistan. The outcomes prescribe that any disintegration in financing top notch powers the banks to apportion higher misfortune arrangements, and subsequently increment the inferred credit risk. There might be furthermore evidence that capital ratio is awful and factually huge in making sense of the financial assessment risk level of Islamic banking sector in Pakistan. Few illustrative factors exhibit particular results all through the estimation models. For instance, C.buffer just appears to have a superb full-measure impact using a credit card score risk in the ordinary least square and fixed effect estimation models. NM handiest recommends enormous outcomes inside the base form of the fixed effect model specification. NM is not an enormous When IFT and possession variables are being taken inside the estimations.

There are a few impediments of this examine must be attention to take a shot at in future examinations like sample of Islamic banks. For future take a gander at, an appraisal among commercial banks and Islamic banks will likewise increase the value of the investigate. Predetermination investigates my furthermore incorporate distinctive interior factors and macroeconomics factors in examining the purposes behind FICO assessment peril in Islamic banks. Through doing as such, it will cover each miniaturized scale and macroeconomics factors and the estimation are foreseen to exhibit additional knowledge on the credit peril administration of Islamic banks. Management of Islamic Banks in Pakistan should consider that BSV do significantly effect on credit risk for management in Islamic Banks. They should keep in mind that any worsening in financing will be result in higher loss provisions.

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